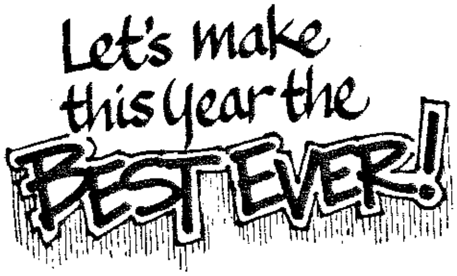
CALIFORNIA CAST METALS ASSOCIATION

SACRAMENTO UPDATE



January, 1987
Volume XI, Number 1

CCMA SPECIAL REPORT: LIST OF TESTING LABS

Enclosed with this newsletter is a complete statewide list of testing labs that have been certified by the state DOHS to conduct the CAM/WET tests required of waste foundry sand. This is a companion report to the CCMA Foundry Sand Workshop Transcript that was sent to all CCMA members last month.

SECOND GRANT UNDER CONSIDERATION

CCMA received high marks from the state DOHS for the quality of the work we did last year on our Foundry Sand Project. That project was partially funded by a $64,000 state grant . CCMA has now applied for a second state grant, in the amount of $38,000, to provide our members with technical assistance in the on-site treatment of waste foundry sand. If this grant is approved for 1987, CCMA will be able to provide a "seed money" grant to any CCMA member foundry that wishes to begin on-site detoxification and recycling of foundry sand.

DUKE MAJORITY ON PUC IN '87

Gov. Deukmejian has appointed Mitchell Wilk to the California Public Utilities Commission (PUC). If confirmed by the Senate, as expected, Wilk will be the third Deukmejian appointee to the PUC, shifting the majority on the 5-member board to appointees of the current Governor. PUC is the powerful state agency that determines energy policy and prices. The majority also elects the President of the PUC, a post now held by Donald Vial who was appointed by former Gov. Jerry Brown on Brown's last day in office.

CCMA WORKSHOP TRANSCRIPT: DETOXIFYING FOUNDRY SAND

CCMA

December, 1986

CALIFORNIA CAST METALS ASSOCIATION

1011 St. Andrew's Drive • Suite I • El Dorado Hills, CA 95630 • (916) 933-3062

Frederick J. Simonelli
Executive Director
William P. Conway, Jr.
Administrative Director
Hazel Kagan
Legislative Analyst

December, 1986

Dear Foundryman:

The presence of heavy metals in foundry sand, at sufficient quantities, renders that sand "hazardous" by California law. Although this problem is most common in non-ferrous foundries, the law requires every foundry --- ferrous and non-ferrous --- to test their sand to determine whether or not it passes the California standard.

For those foundries who do not pass, the alternatives are either to dispose of the sand in an approved manner for hazardous waste or employ some process that renders the sand non-hazardous. The first alternative is extremely expensive and in a few short years will no longer be available at any price because state law ends the disposal of untreated hazardous waste in a landfill by 1990. We are left, therefore, with the remaining alternative: employing a process that renders our sand non-hazardous.

When CCMA recognized this problem, almost two years ago, we began a project to research available technology and present to our members the best information so they could make a sound decision on the course they were to pursue. At that time Jim Furness, who is a sand consultant, came to CCMA and offered his help in finding a practical, affordable solution.

At this same time the California Department of Health Services began a series of meetings with CCMA officers and staff to explore with us a reasonable solution to this problem. CCMA would like to publically recognize the role DOHS has played in this endeavor. From the very beginning, California DOHS officials demonstrated a compassionate and cooperative attitude. Their philosophy of non-confrontational assistance and support enabled us to attack this problem in an orderly and productive manner. The DOHS provided guidance, encouragement, technical assistance and helped bring all elements of the project to fruition. They also provided critical funding to match the enormous investment CCMA was making in this project. CCMA, and the entire foundry industry, is indebted to Dr. David Leu, Chief of the Alternative Technology Section of the DOHS, for personifying the highest standard of industry/government cooperation. We also wish to thank Dr. Leu's associates at DOHS, Alan Ingham, Bill Quan, Norm Riley and Kim Wilhelm.

Finally, CCMA would like to thank Jim Furness for coming forward with a simple offer to "help" at a time when many people felt this problem was insurmountable. Jim's "simple offer" entailed months of work and thousands of dollars donated by him in behalf of the foundry industry. This transcript of CCMA Sand Workshops held in October details the "Furness Process" for detoxifying foundry sand. It is a process that CCMA and the DOHS believe provides a practical, affordable solution to detoxifying foundry sand. Foundries desiring more information can contact Jim Furness directly at: 520 Patterson Blvd., Pleasant Hill, CA 94523; telephone - (415) 934-9246.

incerely yours,

Frederick J. Simonelli
Executive Director

Transcript: Detoxifying Foundry Sand

(The following text is an edited transcript of the presentation by JAMES C. FURNESS, Foundry Sand Consultant, to the CCMA Sand Workshop attendees in Huntington Park, California on October 21, 1986 and in Fresno, California on October 28, 1986)

In late 1984 a devastating blow was dealt the beleaguered foundry industry when ALL California foundry spent sand was mistakenly declared a "Hazardous Waste" by the California Department of Health Services.This mandated projected potential documentation and disposal costs in excess of $200/ton. The possible presence of lead, zinc, and other metals in the sand was the main reason for this ruling. Although this ruling was later amended due to extensive lobbying by the California Cast Metals Association to declare foundry spent sand a "Special Waste", the brass foundries found that it was difficult or impossible to pass the extremely stringent California CAM/wet leachate test required to be done by all foundries on their waste sand.

As a manufacturer of sand reclamation equipment, my initial interest was of course the potential sale of reclaim systems. After a long conversation with Frank Lee of A-Brass Foundry, it became very apparent the overall problem was more complex. Frank invited me to a Non-Ferrous Founders' Society meeting in Southern California where many ideas were tossed about - good and bad. It quickly became obvious this subject was not just a foundryman's normal everyday bitching about business conditions. This was potentially a matter of life and death for the brass foundry industry in California and unfortunately, no inexpensive solution was in sight.

A break came at the American Foundrymen's Society Convention in Pittsburgh, Pa. After spending a great deal of time discussing this problem with several other reclaim manufacturers to no avail, I realised some of our success in reclaiming sodium silicate bonded sand over the past several years might apply. I knew that a low sand to metal ratio in steel castings rendered a portion of the residual sodium silicate insoluble and easier to remove and had previously considered the possibility of using heat and silicates to render metals insoluble. Also, Nevada silica sands can contain small amounts of calcium that seem to render them more reclaimable and less prone to moisture pickup when bonded with sodium silicate. Thus, calcium must also reduce the solubility of the silicates.

This theory seemed to be similar to a paper presented at the American Foundrymen's Society Convention in Cincinnati several years ago reporting on the use of calcium, magnesium, lithium compounds and microwaves to improve humidity resistance of sodium silicate bonded cores. While considering these ideas in a hospitality suite with a chemist from a silicate supplier, he informed me of an experiment in which he had taken part that had reduced the solubility of chrome plating sludge using calcium and silicates. He suggested I call one of their chemists for a copy of the paper that had been written about the experiment. In doing so, I also received a paper on the chemistry of insoluble scale precipitation in geological formations during alkali floods which is caused by a reaction between sodium silicates and the metallic ions in clay deposits. The pieces of the puzzle were starting to fit, but obviously there are big differences among reclaiming sand, solidifying liquid plating sludge, making cores, precipitating insoluble scales in geologic formations, and treating brass foundry sand.

Several months [illegible] during which I fell back into the role of [illegible] reclamation syste[illegible]facturer and called on several foundries to see if there would be enough interest to justify investment in a mobile sand reclamation system owned and operated by several foundries. In addition to the usual foundryman's first responses to new concepts:"It won't work here" and "Who else has got one?", there were valid technical questions which at that point in time had not yet been answered.

I decided to go against my feelings about throwing sand away and went back to the information I'd gathered on silicates, clay and calcium to try to develop a method to render the sand safe for disposal. I had assembled many clues to the puzzle, some of which are:

The solubility of some silicates can be reduced by heat, the presence of calcium, magnesium and lithium ions, and increasing the ratio of silica in the silicate.

Several brass foundries using silicate cores reported having substantially lower amounts of leachable lead than most foundries using other core processes.
Silicates and metal ions in clay form insoluble compounds.

It is not uncommon to find metals in their natural state chemically combined with calcium and silica, especially if the geologic formation had once been an ocean.

In cases of human heavy metal posioning, high metallic concentrations are almost always found chemically combined with the calcium and magnesium in the victims' bone marrow.

According to a technical paper, when chrome plating sludge is solidified with sodium silicate set with acid in the presence of calcium, the solubility of the chrome was reduced.

I decided to try what seemed to be a naturally occurring environmental process. Duplicating the sequence of application of chemicals found in the ocean where metals are covered by a layer of calcium and magnesium (sea shells)reacted with sodium, water, dissolved silica and other compounds (seawater), I decided to try an electrostatic dry powder coating method of which I had knowledge to provide the calcium/magnesium ion source and then substitute sodium silicate for the sea water.

Acra-Cast Foundry agreed to provide manpower, sand and pay for testing if I provided the mixing equipment and chemicals. I must admit to detecting more than a bit of skepticism from Dennis and Don Harper, owners of Acra-Cast, but I think they figured if I was crazy enough to ask them to contribute to the cost of the research, I might be on to something. On the very first experiment, one of the samples tested an incredibly low soluble lead level of less than .09 mg/l. I owe a great deal of thanks to Dennis and Don for supporting me when others had turned away.

My first attempts to share this discovery and test results with the foundry industry nationwide were met with tremendous opposition. The old "It won't work here" and "Who else" of course were the order of the day. Other comments were "That capsule will wear off", "sodium silicate's not permanent-I had some cores fall apart the other day","If this would work, don't ya think someone would already be doing it?" and just plain old "bullshit!".

After developing what I hoped would be one method of treating foundry sand and then encountering this wall of opposition at the national level, I decided I did not have the disposition nor did the foundry industry have the time left before toxics law enforcement started closing brass foundries for me to "sell" this process to an entire nation. Besides, this was getting expensive and I had no return on my investment yet.

I arranged a meeting with Fred Simonelli, Director, California Cast Metals Association and explained the process and the test results. I told Fred about the resistance I was encountering and how important I felt this process could possibly be to the survival of our brass industry. However, I also knew from many years experience that one man or company could not, and probably should not, change the conservative nature of our industry. As always, when Fred feels something might be good for the California Cast Metals Association, he picks up the ball and runs with it; in this case very cautiously, opening doors along the way.

Fred arranged for the two of us to meet with Dr. David Leu, Chief, California State Department of Health Services, Alternative Technology Section, Toxic Substance Control Division and Bill Quahn, Chief Chemist, California State to discuss the test results, design of a mobile treatment system and possibility of the Farr Bill Toxics Waste Treatment Demonstration Grant Program giving us the money to build a mobile unit. To be honest, I expected more skepticism. Instead, the people at the Capital became very excited about the process, the test results, mobile treatment and the possibility of qualifying for a grant. What I didn't know at the time was a University of California Berkeley professor, Dr. Trezek, had already been working with the State on another toxic metals bearing waste stream using silicates and a metalloid catalyst commonly used with sodium silicates in foundries. I suppose that unknowingly developing parallel technology with a major university gives you some creditability.

There were two down sides to this meeting. The first was that the sand samples were tested with the E.P.A. leaching procedure, not the California CAM/wet test and therefore would have to be retested. The second was that if a grant were obtained the process would become public domain. These two stepping-stones did not seem at this time to pose a problem. I had confidence in the process and the grant funds to build the mobile unit plus operating revenues after completion of the project would more than cover my mounting out of pocket expenses.

The retesting to the much more stringent California standards went as expected with soluble lead in the foundry sand after treatment of .19mg/l. When I called Dr. Leu with these results along with results from another process I'd developed for treating steel arc furnace dust, he requested I come back to Sacramento and meet with his technical staff. I was shocked to learn that all the research and the equipment I had built to treat the sand could be illegal without a permit to construct and operate. Dr. Leu instructed and assisted me on how to apply for the necessary variance to continue my work. Then the real bombshell hit. Dr. Leu informed me that he and his staff were so enthusiastic about my process that they would like me to try the process on several other types of toxic metal bearing solid wastes while they observed my work using the State Toxics Laboratory for testing.

Tremendously encouraged by the support at the State level, I went ahead with the design and development of the technical portion of the application for the grant to build the mobile unit which combined with the California Cast Metals Association's administration and testing costs totaled well over $350,000.

This ordeal of nearly two years of work is now showing definite signs of progress. I was recently granted a variance from the Hazardous Waste Facility Permit Requirements to operate equipment statewide to treat toxic metal bearing waste streams with the ul[illegible] of developing operating procedures and the necessary quality control procedures to qualify sites or mobile units for permanant status. The process has now been succesfully used on a variety of metals bearing solid waste with the assistance, cooperation, enthusiasm, and of course, close observation of personnel from the Department of Health Services. The California Cast Metals Association has cultivated a spirit of cooperation with this regulatory agency and has received a grant from it totaling $63,475 to sponsor two seminars to demonstrate this sand treatment process to California foundries. Unfortunately, this is not the $350,000 plus necessary to build and demonstrate the mobile treatment unit for which we had hoped.

-Silicates

For our experiments we use several grades of silicates, most with altered viscosity and surfactant additions.

-Calcium/magnesium

Almost any source of calcium or magnesium seems to work if used properly. Calcium carbonate and iron oxide was used in this demonstration. As results will vary dramatically, experimentation with several sources of calcium sources might be nessary to find the best cost/result relationship. We have had excellent results with SO 2 scrubber waste in high copper, zinc and lead bearing waste.

-Clay/alumina

The ratio of dead clay to live clay along with the total of both will affect the addition levels and resulting solubilty of heavy metals.

-Core process role

According to conversations with several foundries, acid cataysed cores seem to leach lead at higher rates than cores made with basic materials - silicates.

-Treatment/production scenarios
(see fig. 1)
If inhouse recycling occurs, an exemption might be made from treatment regulations. Sand molded while using this process and then having metal poured into the mold may qualify as inhouse recycling. As the process uses a significant amount of water, extreme care and common sense must be used to prevent explosions from occuring! A precautionary facing mix of a standard silicate/calcium ratio at the mold/metal interface then backed with sand from this process may, according to the D.H.S., be the answer. Again, extreme care must be taken. Do not pour metal against any wet sand or an explosion may result!!

-Equipment necessary

Some has been developed specifically for this process, however much of our existing foundry mixing equipment can be modified to work for this process.

-Aging process

Allow at least 72 hrs before testing

-Quality control procedures

Must be developed for every foundry to satisfy local requirements

-Certified labs

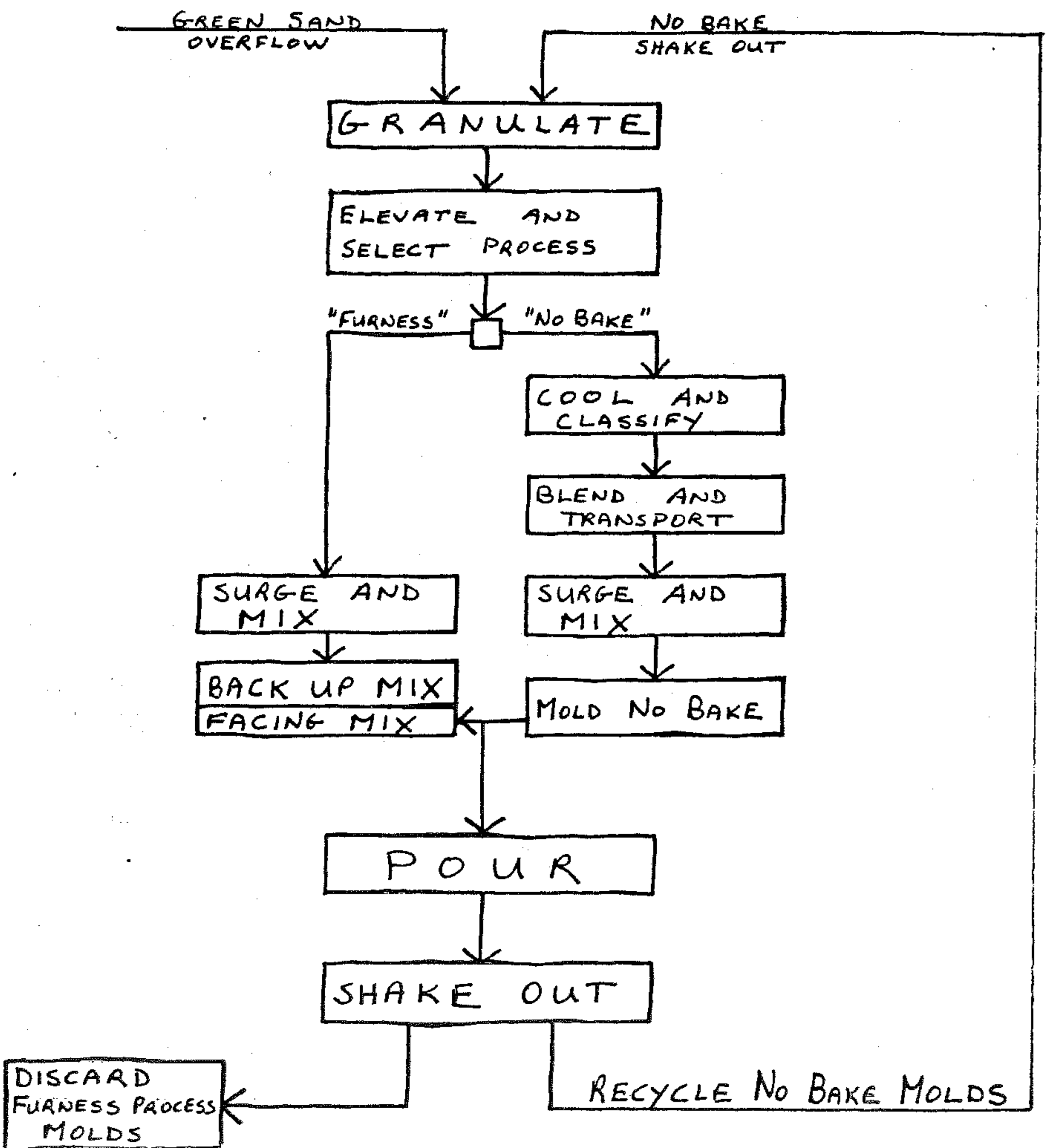
Prices vary dramatically - shop around.

-Mobile treatment

Cost to build is \$250,000 - \$350,000 with a projected treatment cost of \$50 - 90/ton

Addition level for Demo:
10% silicate + 10% calcium

FURNESS PROCESS FLOW CHART (FIG. 1)



(Summary transc[illegible] question and answer session with Mr. [illegible] his pre-sentation at the CCMA Foundry Sand Workshop in Fresno, Ca[illegible] October 28, 1986)

WHAT'S THE COST?

We just built a mixer costing in the neighborhood of $12,000 to $17,000 installed. It is a continuous mixer modified for this process. It has a plastic trough; that's the most important part of it. It's vacuum cast urethane so that we build tribo electric charges as you agitate the sand. If you want to do this experiment, take a dry styrofoam cup, put a teaspoon of sand in it, tilt it at 45 degrees and rotate it. The sand will start jumping out of the cup. The process will work with a metal lined mixer, since I did the original research with a metal lined mixer, but it is much easier with a plastic trough.

DOES THE ENTIRE MACHINE NEED TO BE PLASTIC?

Oh, no. Just the mixer trough.

WHAT'S THE COST OF THE RECYCLING UNIT?

About $160,000.

CAN YOU RE-CLAIM SILICATES WITH THIS SYSTEM?

No. If you run sodium silicate bonded sand, you will have to have an added piece of equipment behind this, although you probably will be able to recover 50-60% of sodium silicate bonded sand with this system. But if you want to go to a higher percentage you need an additional scrubber.

ARE PRE-SCRUBBERS AVAILABLE AND EASY TO INSTALL?

Yes.

HAS BUCKEYE RUN ALL THEIR SAND THROUGH THIS SYSTEM? (n.b. question refers to Buckeye Brass Foundry, site of test installation)

Yes. Both their sand systems are already being re-cycled and, as we all well know, the overwhelming majority of green sand is re-cycled many times anyway. I think the national average is about 96% of the green sand, but that 4% bleed can get very expensive when you are talking about hazardous waste disposal sites.

IS THIS A CLOSED LOOP SAND SYSTEM?

No. We're not talking a completely closed system at all here.

IS THERE A WAY TO REDUCE THE COST?

Yes. If you give me clean sand, if you do your best to put in cyclones to keep your metal from grinding stations out of the sand, if you use a non-acidic catalyzed core system or no cores at all --- we've been able to do it for as little as $6 per ton for chemicals. The reality is much higher than that. The average is going to be between $18 and $34 for chemicals.

WHAT'S THE COST WITH A MOBILE TREATMENT SYSTEM?

If we come in with a mobile treatment system, depending on the insurance requirements, it's going to be from $50 to $90 per ton to treat your sand.

HOW FAST WILL THE MACHINERY PROCESS SAND?

The machine that I put in at Buckeye runs 77 pounds per minute. With modifications we could run 533 pounds per minute.

WILL THE PROCESS VARY FROM FOUNDRY TO FOUNDRY?

Yes. In this case, all foundries are dramatically different in the "recipes" or formulas that are necessary to do this work. A foundry's level of live clay affects it; the level of dead clay affects it; the core sand affects it; the GFN affects it; the amount of baghouse dust you have affects it. It will take individual attention to determine the proper formula for each foundry.

WHAT DOES IT TAKE TO GET US STARTED TREATING OUR SAND?

Let me explain, from my standpoint, what is involved. A couple of days just gets you started. I sit down and try to find what I call a "window of treatability". The first two days is basically getting in, finding out whether or not we can identify a calcium source for you, and then deciding where to go from there. Then it is going to take anywhere from two to six weeks to get your test results back. Once we find out what it is going to take we try to develop a cost structure so you can make an intelligent decision on whether to consider a mobile treatment system, to put in your own system, to go ahead and treat, or whatever. Then we must apply for the proper permits and then, at that point, you get serious about construction. So it's not just something you can come in and do ina couple of days. It will take that long just to identify your "window of treatability".

IS ANYONE DOING THIS NOW AND WHAT ARE THEY PAYING PER TON?

I think you will find people using a similar process for sludges already. The hazardous waste disposal sites are already doing it --- treatment on site. Of course, in five years we won't have any option --- that's the state law. We simply will not be allowed to dispose of any untreated hazardous waste. Anywhere. Period. This is one of the reasons that the costs are so high to put it in a hazardous waste disposal site. The other reason, as all businessmen know, is greed. Simple greed. It's what the market will bear.

ARE OTHER STATES AS STRICT AS CALIFORNIA?

Well, I hate to say this, but I think you will find Pennsylvania is probably much more difficult. At least in California they'll work with you. In Pennsylvania they won't work with you. They just say no.

WILL IT BE CHEAPER TO HAUL TO OTHER STATES AND TREAT?

In reality I don't see that occurring. The real question is, is it more expensive a treatment process to meet the California CAM/WET standard than to meet the EPA standard? What we've seen is that once you hit a certain threshold the numbers fall way off. If you don't hit that threshold you won't meet the EPA standard anyway. If we do the process right, the numbers fall off. If we don't do the process right you can use the same amount of chemicals, or even more chemicals, the ion exchange still won't occur and it won't meet either California or EPA standards.

DO YOU TRY TO TREAT AT MINIMUM LEVELS?

Yes, we do. But probably what is going to reduce your treatment costs more than any single thing is to keep your metal out of your sand as best you can.

WHAT ARE THE SCRAP DEALERS DOING WITH THE SAND NOW?

I have been dealing with several of them, in several different states, and this has put them back into business. This gives them the ability to recover the brass chips, once the sand is treated and non-toxic. What is left over from their process they are now able to treat, using the same process to treat their residue. Even in reclamation, you're going to have a lot of materials that will have to be treated but this makes it technically viable.

WHAT'S THE EXACT CHEMICAL REACTION?

It's basically a sodium oxidation of the metal, but UC Berkeley has received a state grant to study it.

CAN BAGHOUSE DUST BE TREATED WITH THIS PROCESS?

Yes, but it is not the exact same process. It is dramatically different in its costs. Costs are substantially higher on baghouse waste. Also, it's real tricky. Believe it or not, the easiest thing I've treated so far is brass foundry sand. This project dealt with foundry sand but, in fact, we are going to have to treat everything in a few years. Regarding baghouse dust, we are going to have to use the skills we have developed with foundry sand and try to apply them to baghouse dust. But to answer your question,yes, we've been doing it and it has been working.

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
SACRAMENTO, CA 95814
(916) 322-3670

(The following text is an edited transcript of remarks made by NORMAN E. RILEY and ALAN T. INGHAM of the California Department of Health Services at the CCMA Sand Workshops in Huntington Park, California on October 21, 1986 and in Fresno, California on October 28, 1986)

"A brief explanation of why untreated spent foundry sands are considered to be hazardous wastes under California's Regulations, and why the Furness process may be a solution to the problem"

By
Norman E. Riley
Hazardous Materials Specialist, DOHS

Title 22, California Administrative Code, Division 4, Chapter 30 (22CAC 4.30) provides that any waste which possesses one or more of the following properties or characteristics is a "hazardous waste" and must be managed accordingly:

1. Toxicity
2. Corrosivity
3. Reactivity
4. Ignitability

Criteria for the identification of hazardous and extremely hazardous waste are set forth in Article 11, 22CAC 4.30. Waste foundry sands do not ordinarily possess the last 3 characteristics but, with sufficient frequency to concern the foundry industry, these sands are considered to be toxic (and therefore hazardous) by virtue of their metal content. As an illustration of this point consider the example of a waste foundry sand containing 3% brass (with a composition of 80% Cu, 5% Pb, and 10% Zn). Such a sand would contain:

2.4% Cu or 24,000 ppm Cu

.15% Pb or 1,500 ppm Pb

.30% Zn or 3,000 ppm Zn

Section 66699 (22CAC 4.30) presents values known as the STLC (Soluble Threshold Limit Concentration) and the TTLC (Total Threshold Limit Concentration) for Cu, Pb, Zn, and other substances.

	STLC (mg/L)	TTLC (mg/Kg)
Cu	25	2,500
Pb	5	10,000
Zn	250	5,000

If a waste contains a listed substance at a concentration which exceeds its TTLC value, the waste is a hazardous waste by definition (Section 66699(a)(2)). In the preceding example, the concentration of Cu and Pb exceed their respective TTLCs. The foundry sand in this example is a hazardous waste. In cases where the concentration of a given element or compound is less than the TTLC value but greater than the STLC, the regulations require that the California Waste Extraction Test (WET) be conducted following the procedure described in Section 66700 (22CAC 4.30).

The WET measures the concentration of soluble substance in the waste. If this concentration exceeds the listed STLC value, the waste is considered to be hazardous (66699(a)(1)). If the soluble concentration is below the STLC (or the total concentration is initially less than the STLC), the waste is non hazardous provided that it possesses no other hazardous characteristic. The WET is designed to simulate the leaching that a waste will undergo if disposed of in a sanitary landfill. It is similar to, but more aggressive than, the EPA's Extraction Procedure Toxicity test (EP TOX).

Requirements for hazardous waste management are increasingly stringent, and the associated costs have reached alarming proportions. Mr. Furness has developed a treatment process which promises relief to the foundry industry. This treatment process reduces the solubility of metal components to levels below their STLCs by chemical fixation thus rendering the wastes nonhazardous. The total concentrations of metals are unaltered by this treatment, however, the treated waste may be considered nonhazardous pursuant to Section 66305(e) because it possesses a mitigating characteristic which renders it insignificant as a hazard to human health or the environment (i.e. it contains no respirable particles and poses no significant dermal or oral risk when responsibly managed).

The preceeding discussion is largely adapted from the regulations referenced. To obtain a copy of 22CAC 4.30, mail a check or money order payable to: State of California, Department of General Services, Documents Section, Ordering Department, PO Box 1015, North Highlands, CA., 95660. For an additional $12.00 per year one can subscribe to an amendment service which provides updates to the regulations as they become available.

The Hazardous Waste Treatment Permit as it applied to Hazardous Waste Foundry Sand.

By
Alan Ingham

Waste foundry sand may be hazardous based on its content of hazardous metals as determined by comparison with the standards published in regulation for the Soluble Threshold Limit Concentration (STLC) and the Total Threshold Limit Concentration (TTLC). The TTLC determination of a sand's hazardous nature is discussed in the preceding portion of the procedings explaining why spent foundry sands are considered hazardous. Generally non-ferrous foundry sand will have a high probability of being hazardous due to concentrations of lead, copper, and zinc.

If a waste sand is found to be hazard ... ansportation treatment, and storage of this material is ... y regulated by Division 20 of the California Health and Safety Code and Title 22 of the California Administrative Code. Senate Bill 1500 will require that all untreated hazardous waste be banned from land disposal within a five year period ending May of 1990.
This means that any hazardous waste sand now going to land disposal as an untreated material will, within five years, require treatment if it is to be land disposed. Any treatment operation for hazardous waste will require a permit as a hazardous waste treatment plant (Section 66371.61 of Title 22 of the California Administrative Code). Once treated to a non-hazardous level as determined by the standards set for the hazardous metals present, the material could then be handled as nonhazardous waste.

The permitting process, however, is very detailed. The application alone is extensive; requiring maps showing access roads, easements, utilities, zoning and land use in the area, among other requirements. Information is required on the waste, the treatment process, worker training and safety, and emergency planning. The permit would, once approved, specify operator and monitoring conditions for the treatment process. The treatment system permit application must be filed 180 days before construction is to scheduled start and, in general, the permit porcess takes in excess of one year to approve.

Treatment process permitting can be avoided if the process treats the hazardous foundry sand on site enabaling recycling of the treated sand back into the foundry process. (Section 25143.2 (b)(1) Division 20 of the California Health and Safety Code). One suggestion has been to use treated sand to make ingot molds. If the reuse of this material does not cause the reused sand to become hazardous according to the STLC and TTLC, the material could then be disposed of as a nonhazardous waste.

Hazardous waste foundry sand may be accumulated for up to 89 days prior to treatment without a permit (Section 66508 of Title 22 of the California Administrative Code). If wastes are stored for 90 days or longer a storage permit is required.

Mobil treatment processes hold particular promise for the smaller foundrys whom are unable to afford the capital cost and treatment process liability insurance premiums. The transportable treatment process would travel to each foundry and would process the hazardous waste sand to create a nonhazardous product and would prepare the sand for recycling back into the foundry process (such as the production of ingot molds). The treatment and recycling would occurr at the site of the foundry generating the waste sand. The transportable process would carry no hazardous waste between foundry operations. The transportable recycling treatment unit would not require a permit.

Additional information on permitting for treatment, storage, or the disposal of hazardous waste may be obtained from any one of the Department of Health Services Toxic Substances Control Division's three regional offices at the following locations:

Northern California Section
4250 Power Inn Road
Sacramento, CA 95826
(916) 739-3145

S[illegible]hern California Section
10[illegible] S Broadway, Rm. 7011
Los Angeles, CA 90012
(213) 620-2380

North Coast California Section
2151 Berkeley Way, Annex 7
Berkeley, CA 94704
(415) 540-2043